REMARKS

This Amendment is in response to the Office Action dated May 9, 2011. Applicant respectfully requests reconsideration and allowance of all pending claims in view of the following remarks.

I. CLAIM REJECTIONS – 35 USC § 102

Claims 15, 17-19, 21-25 and 27-28 were rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Magee, U.S. Publication No. 2003/0086508.

Applicant respectfully disagrees with the Examiner's opinion.

A. Magee Fails to Disclose Multi-Carrier Signals

First of all, independent claim 15 relates to multi carrier signals (and OFDM modulation). The symbols on which the steps of claim 15 are performed are defined in claim 15 as being "symbols of a multi-carrier signal." Magee relates to single carrier signals. Indeed, according to Magee, the frequencies are obtained after time/frequency transformation (FFT) of a signal transmitted in the form of one or more bursts. A "pilot tone" is thus a single frequency.

Due to the fact that claim 15 relates to multi carrier signals, it is a interpolation in time and in frequency that is implemented on the pilots, in order to obtain the channel response and the first channel estimate. Indeed, a pilot according to the present application is defined by its position in the frequency and time space, which is known by the receiver.

The step of obtaining a first channel estimate according to pending claim 15 thus differs from the technique described by Magee, as interpreted by the Examiner, since it fails to anticipate performance of the claims steps on symbols of a multi-carrier signal.

B. Magee Fails to Disclose Correcting the Pilot Tones

The Examiner also considers that Magee discloses the step of correcting each reference pilot according to claim 15.

Again, the Applicant does not share the Examiner's point of view.

Indeed, according to paragraph 25 of Magee states, "*the channel estimator 20 may provide additional corrections, based on known channel responses at the training tones, to the impulse response, such as amplitude and phase corrections*". (Emphasis added).

To the Applicant's opinion, this paragraph means that the channel estimator can correct the impulse response, using the channel response at the training tones, since the channel response at the training tones can be measured and the correction to be applied to this channel response can be easily assessable.

Magee therefore proposes to correct the impulse response and not the pilots of a multi carrier signal. The use of the sentence "known channel responses" confirms that pilot tones, which are well known, are used to correct the impulse response, rather than correcting pilot tones.

C. Magee Fails to Disclose Time/Frequency Interpolation on Said Extracted at Least One Reference Pilot

Moreover, as described by an example of the present application, the first channel estimation step according to claim 1 is implemented in the frequency domain, after FFT (steps 510, 512 and 515), which permits the channel response to be obtained in the frequency domain. The step for correcting pilots can thus by implemented in the frequency domain. It is only after the equalization step, implemented with the second estimation step, that the impulse response of the propagation channel can be determined.

On the contrary, Magee seeks to correct the channel impulse response. The technique described by Magee is thus implemented in the time domain, the channel estimator 20 implementing an IFFT (paragraph 23).

D. **Magee Fails to Disclose a Second Estimate of said Propagation Channel, by Analysis of Said Corrected Pilot**

Since Magee does not disclose correcting Reference Pilots as recited in claim 15, Magee also does not disclose obtaining a second estimate of said propagation channel, by analysis of said corrected pilot.

To conclude, the Applicant considers that Magee is not relevant toward the invention recited in at least claim 15, since:

- Magee does not relate to multicarrier signals or OFDM modulation;
- the estimation and "correction" steps according to Magee are implemented in time domain;
- Magee does not disclose a correction in time and in frequency of the pilots.

II. CLAIM REJECTIONS – 35 U.S.C. § 103

Claim 20 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Magee, U.S. Publication No. 2003/0086508 and further in view of Zhang, U.S. Publication No. 2003/0112265.

Claim 26 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Magee and further in view of Fujji et al., European Patent No. 1542384.

As already explained, Magee is not relevant toward the independent claims. As a consequence, the combination of Magee and Zhang or Magee and Fujji is not relevant toward dependant claims 20 and 26.

A. **Review of Prior Arguments for Claim 20**

As explained in Applicant's prior response, claim 20 of the present application recites that, "pilots with an amplitude less than a first predetermined minimum average threshold and/or greater than a second predetermined maximum average threshold are rejected" and thus not taken into account for "the calculation step for an amplitude and phase error vector".

The **Zhang** document, especially the part cited by the Examiner (page 7, paragraph

[0113]), describes FIG. 10, which represents an energy function graph of captured audio data, on which the energy level of the audio waveform for both noise and speech appear. This paragraph discloses that noise is rejected by the speech detection process, if it exceeds a minimum energy threshold 136.

The **Zhang** document does not disclose or suggest to compare the amplitude of the pilots themselves to a threshold, but only discloses an embodiment where the audio waveform is compared to a threshold.

Moreover, as explained above, as claim 15 is not anticipated by the **Magee** document, the combination of the **Magee** and **Zhang** documents is not relevant and claim 20 is new and non-obvious in view of these documents.

Finally, combining these two documents is not obvious to a person of ordinary skill in the art, as **Zhang** does not concern the domain of OFDM transmission.

B. **Review of Prior Arguments for Claim 26**

The claim 26 recites that that the process of claim 15 is used "for correction of at least one phase and/or amplitude error common to two cells in a same OFDM . . . type symbol".

The **Fujji** document, especially the part cited by the Examiner (page 7, lines 1-7), describes the possible presence of interferences coming from other OFDM cells, for example in OFDM-CDMA transmission, wherein the interferences influence the signal, and precision of phase error detection declines.

This document does not disclose or suggest a phase error detection common to two cells, but only points out the presence of interferences between many cells.

Moreover, as explained before, as claim 15 is not anticipated by **Magee** document, the combination of **Magee** and **Fujji** documents is not relevant, and claim 26 is novel and inventive.

For at least the above reasons, Applicant respectfully requests that the rejections of all pending claims be withdrawn.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

WESTMAN, CHAMPLIN & KELLY, P.A.

By: /David D. Brush/
David D. Brush, Reg. No. 34,557
900 Second Avenue South, Suite 1400
Minneapolis, Minnesota 55402-3319
Phone: (612) 334-3222 Fax: (612) 334-3312

DDB:dme